

WHAT IS CLAIMED IS:

1. A device, comprising:

a pixel having a plurality of bistable subpixels, each subpixel having an ON state and an OFF state;

a plurality of power lines, wherein a different power line is coupled to each bistable subpixel;

and

circuitry connected to the plurality of power lines, wherein the circuitry is capable of individually modulating the pulse width of a power signal transmitted through each power line;

wherein each subpixel includes a first light emitting device that emits light when the subpixel is in the ON state; and

wherein each subpixel has substantially the same size and emits substantially the same spectrum of light in the ON state.

2. The device of claim 1, wherein each subpixel further comprises a photodetector that detects the light emitted by the first light emitting device and provides feedback which is used to maintain the subpixel in the ON state.

3. The device of claim 1, wherein each subpixel further comprises:

a second light emitting device; and

a photodetector that detects the light emitted by the second light emitting device and provides feedback which is used to maintain the subpixel in the ON state.

4. The device of claim 1, wherein the second light emitting device is coupled to a power line that provides an unmodulated power signal.
5. The device of claim 1, wherein the number of grey levels that may be emitted by the pixel is greater than the number of subpixels.
6. The device of claim 1, wherein a first subpixel is connected to a first power line and a second subpixel is connected to a second power line, and wherein the circuitry provides power to the first power line for a first percentage of time, and that provides power to the second power line for a second percentage of time, wherein the first percentage of time and the second percentage of the time are different.
7. The device of claim 6, wherein the second percentage of time is 50% and the first percentage of time is 100%.
8. The device of claim 6, wherein the circuitry rotates the percentage of power provided to the first and second power lines.
9. The device of claim 1, wherein the first light emitting device is an organic light emitting device.

10. A bistable photonic integrated device, comprising:
 - a pixel having a plurality of bistable subpixels, each subpixel further comprising:
 - an organic light emitting device;
 - a photodetector disposed adjacent to the organic light emitting device such that the photodetector is capable of detecting light emitted by the organic light emitting device;
 - a transistor electrically connected to the organic light emitting device and the photodetector, such that the subpixel is bistable,
 - wherein each of the plurality of bistable subpixels is coupled to a different power line, and
 - wherein each of the different power lines provides a different amount of energy.
11. The device of claim 10, wherein each of the power lines has substantially the same peak voltage.
12. The device of claim 10, wherein each of the plurality of subpixels emits a substantially different time-averaged intensity of light in an ON state.
13. The device of claim 12, wherein each of the plurality of subpixels emits substantially the same peak intensity of light in the ON state.

14. The device of claim 10, where the number of grey levels that may be emitted by the pixel is greater than the number of subpixels.
15. The device of claim 10, wherein the plurality of subpixels further comprises a first subpixel and a second subpixel, the first subpixel and the second subpixel have substantially the same size and emit substantially the same spectrum of light.
16. The device of claim 15, wherein a first power line is electrically connected to a first subpixel and provides power for a first percentage of the time, and a second power line is electrically connected to a second subpixel and provides power for a second percentage of the time.
17. The device of claim 16, further comprising circuitry that changes the percentages of time that each power line provides power.
18. An organic device, comprising:
 - a pixel, further comprising:
 - a first bistable subpixel connected to a first power line;
 - a second bistable subpixel connected to a second power line;
 - a third bistable subpixel connected to a third power line; and
 - a fourth bistable subpixel connected to a fourth power line,

wherein each of the first, second, third and fourth bistable subpixels have an on state and an off state, and

wherein each of the first, second, third and fourth subpixels has substantially the same size and emits substantially the same spectrum of light in the on state, and wherein each of the first, second, third, and fourth subpixels emit substantially different time-averaged intensities of light in the on state.

19. The device of claim 18, wherein each of the first, second, third and fourth power lines provide power for different percentages of time.

20. The device of claim 18, wherein the number of grey levels that may be emitted by the pixel is greater than the number of subpixels.

21. The device of claim 18, wherein the number of grey levels that may be emitted by the pixel is equal to 2^n , where n is the number of subpixels.

22. The device of claim 19, wherein percentage of time that power is provided is periodically rotated among the power lines.